

After completing applications, public users submit them electronically and the database notifies DOEE of these new applications. Staff reviews and makes a decision to approve or disapprove each application and the database notifies public users of DOEE's decision.

In FY 2016, DOEE continued to expand the uses of the Stormwater Database across all programs. General enhancements to the database have included streamlining database workflows, automating email notifications regarding application approval and inspection, and providing greater access to program information. Notably, DOEE is now publishing best management practice (BMP) data from the Stormwater Database in a GIS layer that can be publicly downloaded from <http://opendata.dc.gov/>.

DOEE also increased its ability to use the Stormwater Database for its inspection and enforcement programs by developing new database features. DOEE's inspectors now use the Stormwater Database in the field with tablets, which allows them to record inspection events and enforcement actions on-site. Detailed inspection data is stored in the database, signed, formatted into PDF documents, and automatically sent to the site owner and the site owner's agent, if applicable.

DOEE also developed expanded reporting options for the Stormwater Database to enhance the ability of program administrators to track program implementation. This allows DOEE to identify process bottlenecks and to assess overall program implementation across the District.

More information about the Stormwater Database can be found at: <http://DOEE.dc.gov/swdb>

**FY 2017 Goals:** DOEE will continue to migrate historic data into the database and validate historic records. DOEE will expand the database to include new features, to track additional information for DOEE's programs, and to incorporate new programs, including RiverSmart Homes, within the Stormwater Database. Updates about the operation and implementation of the Stormwater Database will be included in future Annual Reports.

#### **4.1.3 Off-Site Mitigation and/or Fee-in-Lieu**

The 2013 Stormwater Rule provides regulated sites with flexible options for meeting regulatory requirements. Under the rule, each major regulated project faces a stormwater retention volume (SWRv) based on either the 0.8 or 1.2 inch storm. A regulated site may meet a portion of its SWRv through Stormwater Retention Credits (SRCs) that are purchased in a private market or through payment of in-lieu fee (ILF) to the District government. Program details are contained in Section 527 and Sections 530 through 534 of the 2013 Stormwater Rule and Chapters 6 and 7 of the 2013 Stormwater Management Guidebook. The regulations and trading program meet the requirements of Section 4.1.3 of the MS4 Permit. For full program information and to view the SRC Registry, visit <http://doee.dc.gov/src>.

In FY 2016, DOEE made a significant investment to accelerate green infrastructure retrofits in MS4 areas by issuing a grant to a non-profit partner, the Center for Watershed Protection (CWP), to assist DOEE with the establishment of an SRC Purchase Agreement Program. Through the SRC Purchase Agreement Program, CWP will enter into contracts on DOEE's behalf with voluntary SRC-generating green infrastructure projects. These contracts will give SRC generators the option of selling SRCs to DOEE at a pre-determined price for a pre-determined

time period, effectively setting a price floor and giving greater certainty to potential SRC generators about the financial viability of their proposed projects. These agreements will be available only to voluntary green infrastructure projects located in the MS4.

After the participating project is built and SRCs are certified, the owner of the SRCs will have the option to either sell the SRCs on the market or execute the purchase agreement with CWP. All SRCs purchased through this program will be retired and removed from the market so that they cannot be resold and cannot be used to meet a regulatory obligation. DOEE has made \$11.5 million (out of a total project budget of \$12.75 million) available solely for SRC purchases. DOEE expects purchase agreements to be available in the spring of 2017.

In addition to the \$11.5 million that will be available for SRC purchases, the grant also includes \$700,000 to support the technical and outreach work required to identify sites that may be good candidates for green infrastructure projects.

DOEE updated the publicly-available information about the SRC program in the SRC and Offv Registry, which is available via the Stormwater Database. These updates increased program transparency and provided more information about program activity. Notably, DOEE now publishes information about expected dates that new projects with Offv will complete construction. Projects must begin using SRCs and/or paying ILF to comply with Offv obligations at the end of the construction process. Publishing this information shows program participants when to expect future trades. The SRC and Offv Registry is available at <http://doee.dc.gov/src>.

DOEE began piloting a discussion board that allows members of the general public to encourage conversation between potential market participants. DOEE also posts news about the SRC program on the discussion board, which is available at <http://hootboard.com/srcprogram>.

DOEE updated a GIS viewer that shows impervious areas in the District. The map now also shows non-tidal tributaries to the District's waterbodies. These smaller watersheds are high priorities for green infrastructure retrofits and will be the focus of the purchase agreement program. Other tools available on DOEE's website include a template SRC trading contract and a financial return calculator to help participants determine the most cost-effective and most profitable projects.

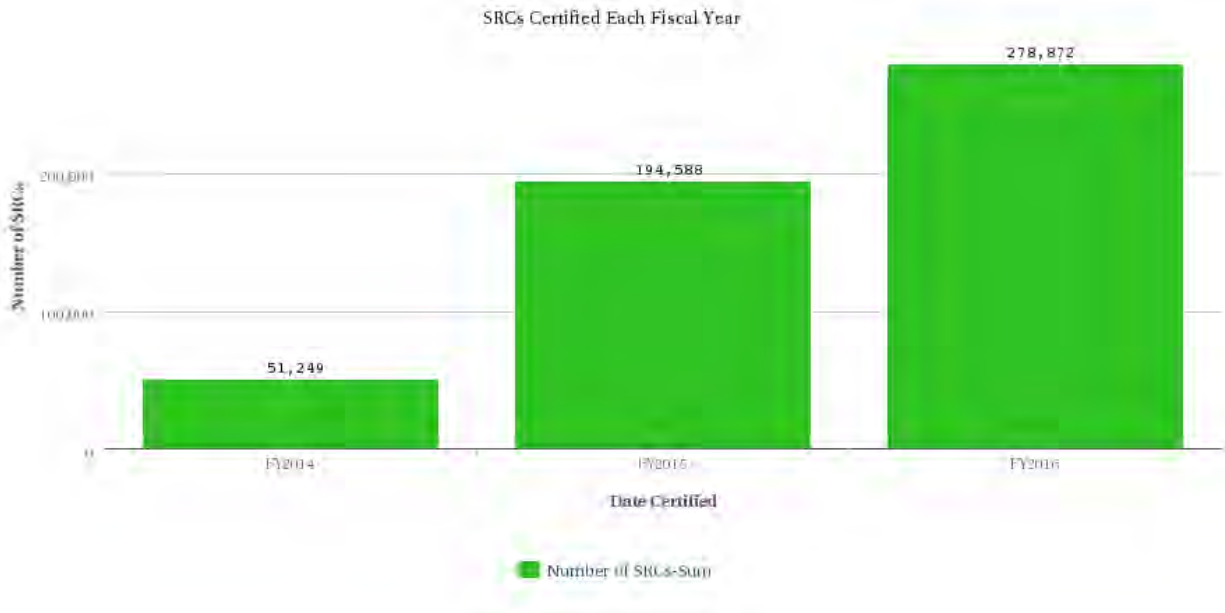
The SRC market and Offv programs grew substantially in FY 2016. The SRC market experienced eight trades for a total of 24,972 SRCs selling at an average price of \$1.85. DOEE also received one in-lieu fee (ILF) payment of \$5,806.76. The SRC trades and ILF payment were driven primarily by projects with Offv obligations that were nearing the end of construction along with one project that was beginning a subsequent year of Offv compliance. Because projects may purchase SRCs and/or pay ILF several months before it is required, the period of compliance achieved by the SRCs and/or ILF payment may begin in a later fiscal year than when a trade occurred. This occurred several times in FY 2016. One site completed construction in FY 2016 and two sites that had already completed construction continued to comply with Offv requirements through SRC use. Offv compliance achieved by the other trades and ILF payment will be described in future annual reports.

In FY 2016, DOEE approved four applications to certify Stormwater Retention Credits accounting for 278,872 SRCs. This is an increase from the 194,588 SRCs certified in FY 2015. Seventy-eight percent of the SRCs approved in FY 2016 were for green infrastructure located in the Anacostia River watershed. Sixty-nine percent of the SRCs approved were for green infrastructure located in the MS4. Since inception of the SRC program in 2013, 79% of SRCs are generated by green infrastructure located in the MS4, and 21% are generated by green infrastructure located in the Combined Sewer System (CSS). Fifty-one percent of SRC are generated by green infrastructure located in the Potomac River watershed, 47% are located in the Anacostia River watershed, and 2% in the Rock Creek watershed.

In FY 2016, DOEE approved 19 permit applications for sites with Offv, bringing the total number of sites with Offv to 34. These values exclude any site that was originally approved with an Offv but has subsequently been approved for a revision to eliminate the Offv. The increase in the number of approved plans with Offv and the increase in the overall Offv approved is expected to stimulate future SRC trades.

Information about SRC and Offv program activity in FY 2016 is summarized in the below charts and tables.

### SRCs Certified



**Figure 1 SRCs Certified Per Fiscal Year**

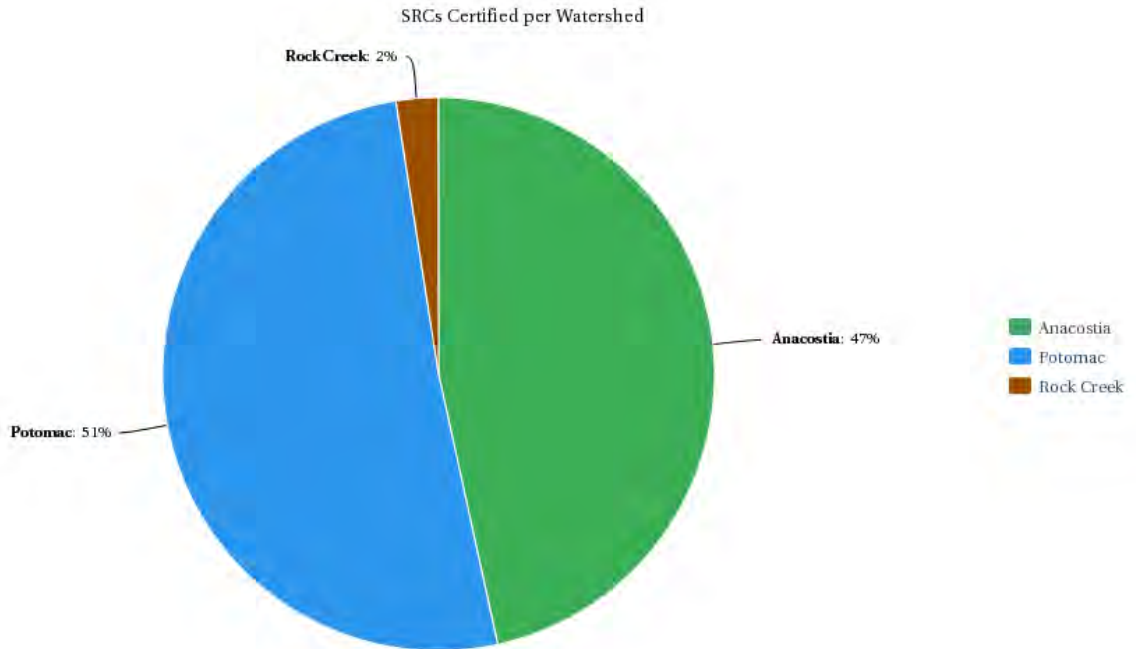
Figure 1 shows the SRCs certified in each fiscal year, with 278,872 SRCs certified in FY 2016. DOEE certifies up to 3 years' worth of SRCs on one application, so each fiscal year shown in Figure 1 represents up to 3 years' worth of SRCs. Each SRC has a vintage year that represents the year during which SRCs achieve retention. A vintage year is based on the date DOEE

receives a complete application and each anniversary date thereafter. DOEE may receive an SRC certification application in one fiscal year and approve it in the next fiscal year.

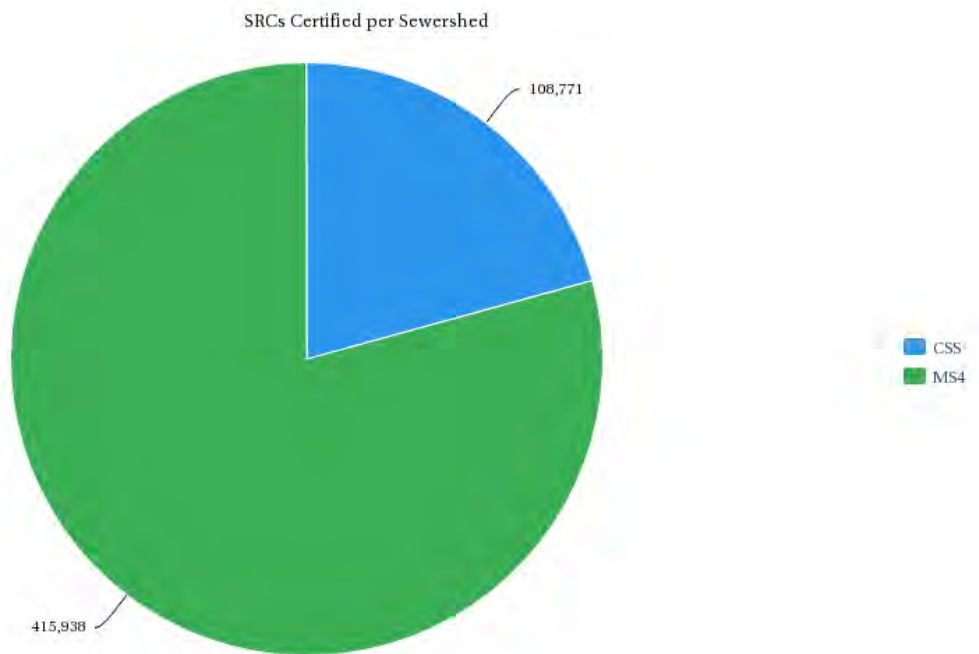
More information about SRC certification is available in Table 6, including the certification and years for which the certification is valid, also known as vintage years. In most instances, the vintage term occurs partially in two fiscal years. For simplicity, this table reports the fiscal year during which the SRC begins to achieve retention. For example, an SRC with a vintage from 9/24/2015 through 9/23/2016 would achieve retention during both FY 2015 and FY 2016 but would be reported only in the FY2015 column. This table includes information about all SRCs that DOEE has certified through the end of FY 2016, including SRCs that were certified in prior fiscal years.

**Table 6 SRCs Certified**

SRC Certification Date	Watershed	Sewershed	Total SRCs	Vintage Year				
				FY2014	FY2015	FY2016	FY2017	FY2018
9/28/2016	Anacostia	MS4	41,344			13,778	13,778	13,778
9/2/2016	Anacostia	MS4	111,621			37,207	37,207	37,207
3/7/2016	Anacostia	MS4	38,826			19,413	19,413	
2/19/2016	Anacostia	CSS	12,203				12,203	
2/17/2016	Anacostia	CSS	12,203			12,203		
10/30/2015	Potomac	CSS	62,685			20,895	20,895	20,895
9/24/2015	Potomac	MS4	123,000		41,000	41,000	41,000	
8/18/2015	Anacostia	MS4	19,413		19,413			
7/2/2015	Anacostia	CSS	8,732		4,366	4,366		
6/12/2015	Potomac	MS4	30,495		10,165	10,165	10,165	
1/29/2015	Rock Creek	CSS	12,948		4,316	4,316	4,316	
4/29/2014	Potomac	MS4	51,249	17,083	17,083	17,083		
<b>TOTAL</b>			<b>524,709</b>	<b>17,083</b>	<b>96,343</b>	<b>180,426</b>	<b>158,977</b>	<b>71,880</b>



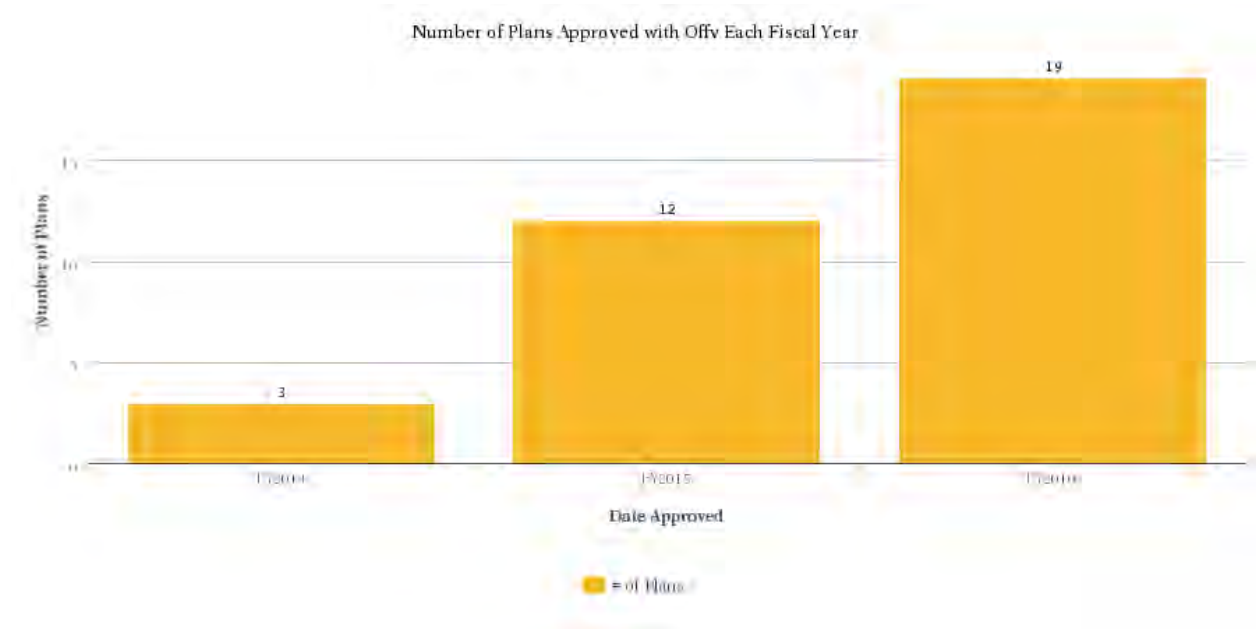
**Figure 2 SRCs Certified per Watershed**



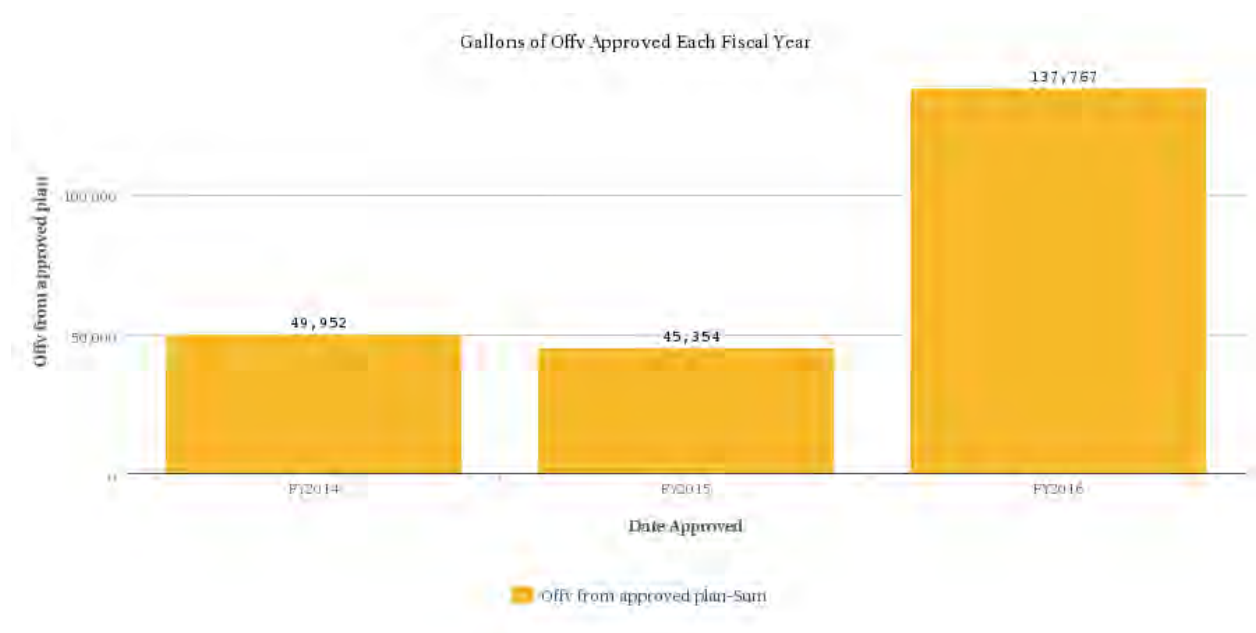
**Figure 3 SRCs Certified per Sewershed**

### Off-Site Retention Volume

In FY 2016, DOEE approved 19 projects with Offv. Figure 4 shows the number of projects approved with Offv each fiscal year. More projects with Offv translate to increased potential demand in the SRC market. This creates additional incentive for more voluntary green infrastructure projects to meet that demand.



**Figure 4 Number of Plans Approved with Offv**



**Figure 5 Gallons of Offv Approved**

## SRC Trades

The number of SRC trades increased substantially in FY 2016, particularly during the last quarter. All trades were driven by projects that were nearing the end of construction or their next Offv compliance date. Table 7 lists the price for each trade, and as each trade represents a different number of SRCs, a weighted average price for all trades is included.

**Table 7 FY 2016 SRC Trades**

Date	Number of SRCs	Purchase Price	Value of Trade
9/26/2016	4,648	\$1.70	\$7,901.60
9/8/2016	2,142	\$2.00	\$4,284
8/10/2016	108	\$1.80	\$194.40
8/8/2016	2,115	\$1.90	\$4,018.50
8/3/2016	3,105	\$1.80	\$5,589
7/8/2016	584	\$1.90	\$1,109.60
7/8/2016	1,257	\$1.80	\$2,262.60
10/2/2015	11,013	\$1.90	\$20,924.70
<b>Total/Average</b>	<b>24,972</b>	<b>\$1.85</b>	<b>\$46,284.40</b>

## Offv Compliance

A regulated site must begin to comply with its Offv as of the date of its Final Construction Inspection and every year thereafter. Projects with Offv must use SRCs and/or pay ILF for each year of Offv compliance. Table 8 shows periods of Offv compliance that began in FY 2016, regardless of when ILF payment was received or when SRCs were certified and traded.

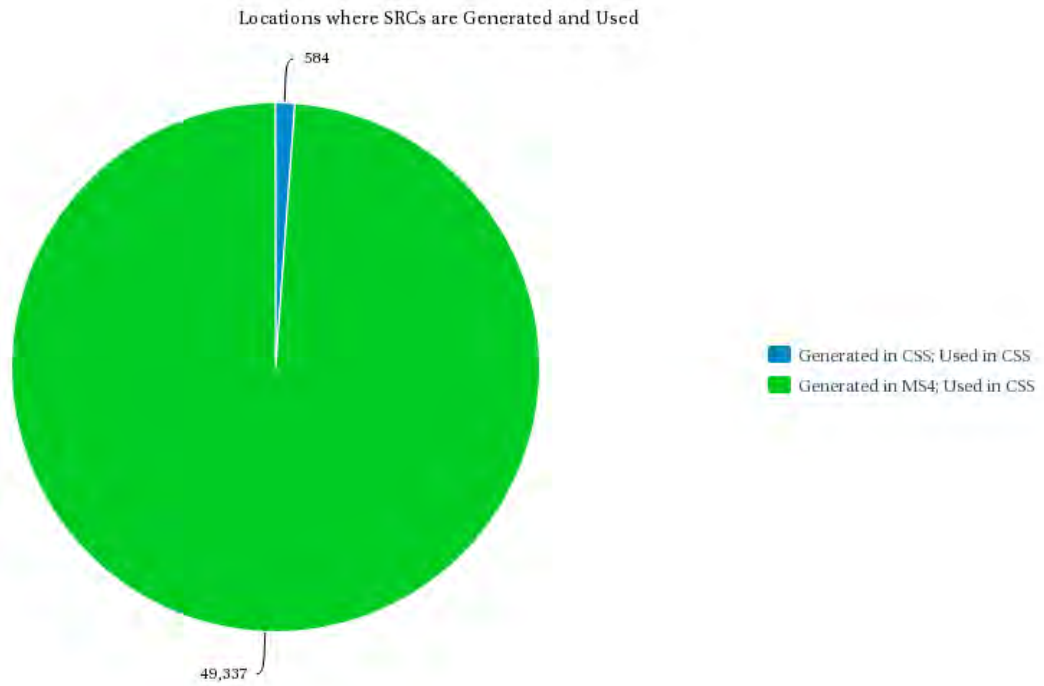
**Table 8 Offv Compliance in FY 2016**

Offv Compliance Start Date	Offv (gallons)	SRCs Used	ILF Payment	Notes
8/24/2016	584	584	\$0.00	Final Construction Inspection
10/31/2015	11,013	11,013	\$0.00	Renewed Offv Compliance
10/8/2015	38,324	38,324	\$0.00	Renewed Offv Compliance
<b>Total</b>	<b>49,921</b>	<b>49,921</b>	<b>\$0.00</b>	

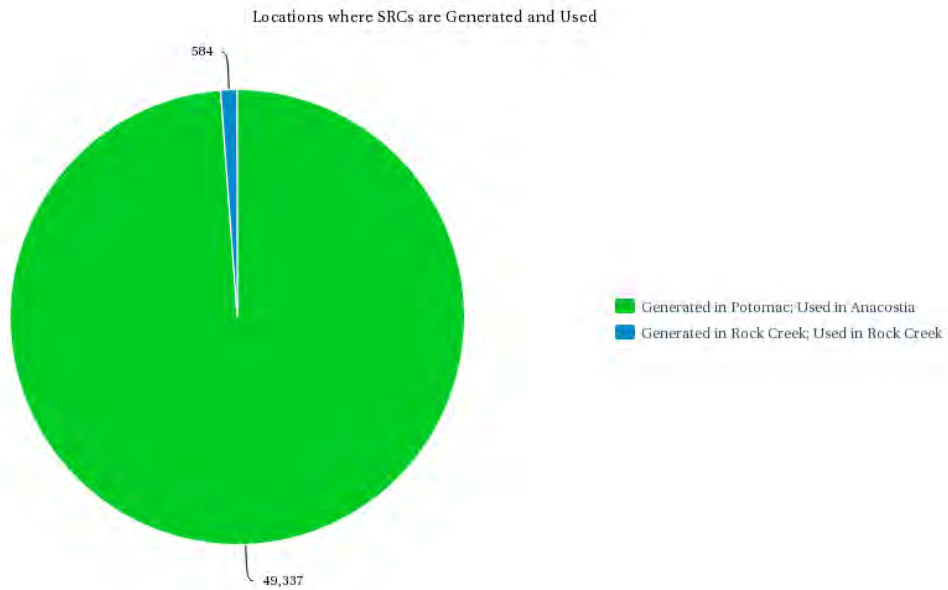
## SRCs Used in FY 2016 – Spatial Distribution

An SRC certified in one location in the District can be used to comply with an Offv requirement in another sewershed or watershed. As shown in Figure 6, 99% of the SRCs that were used in FY 2016 were generated by green infrastructure practices located in the MS4 and were used by projects to comply with Offv requirements in the CSS. One percent of the SRCs used in FY 2016 were both generated and used in the CSS. All of the SRCs used in FY 2016 were used to achieve Offv compliance in the CSS. Similarly, 99% of the SRCs that were used in FY 2016 were generated by green infrastructure located in the Potomac River watershed and were used in the

Anacostia River watershed, while 1% of SRCs were both generated and used in the Rock Creek watershed.



**Figure 6 SRCs Used in FY 2016 - Spatial Distribution by Sewershed**



**Figure 7 Used in FY 2016 - Spatial Distribution by Watershed**



### SRCs Used in FY 2016 – Temporal Distribution

DOEE certifies up to three years’ worth of SRCs at a time and SRCs may be banked indefinitely. DOEE tracks SRC vintage, which is the year for which an SRC represents a gallon of retention. The first SRC vintage year begins the date DOEE receives a complete SRC Certification application. Subsequent years of vintage begin on the anniversary of this date.

Offv compliance is also tracked on an annual basis. A regulated site with an Offv must begin to comply with its Offv as of the date of its final construction inspections.

For SRCs used in FY 2016, Figure 8 and Figure 9 show the extent to which the SRC vintage year overlaps with the regulated sites’ Offv compliance. Figure 8 shows the SRC vintage year in green and the Offv compliance in blue. The number of SRCs represented by each pair of bars is shown on the left size of the vertical axis. For example, the chart shows that 38,234 SRCs had a vintage from 9/24/2015 through 9/23/2016 and were used for Offv from 10/8/2015 through 10/7/2016.

Figure 9 summarizes this information and shows that 88% of the SRCs used in FY 2016 had a vintage year that overlaps with the Offv for which the SRCs were used. Twelve percent of the SRCs used in FY 2016 had a vintage year that did not overlap with the Offv for which they were used, but were within one year of overlapping. It is worth noting that the vintage year for these SRCs occurred before the year of Offv compliance for which they were used, meaning that the environmental performance of the green infrastructure represented by these SRCs occurred in full prior to beginning the period for which it was needed.

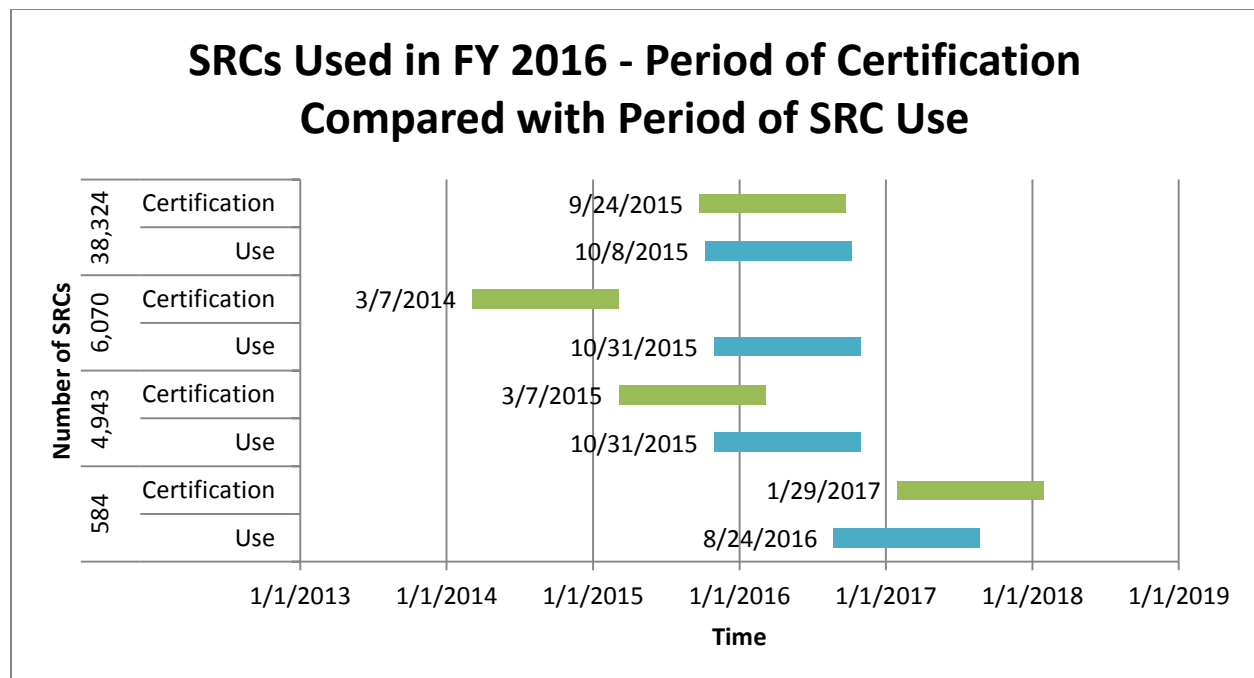
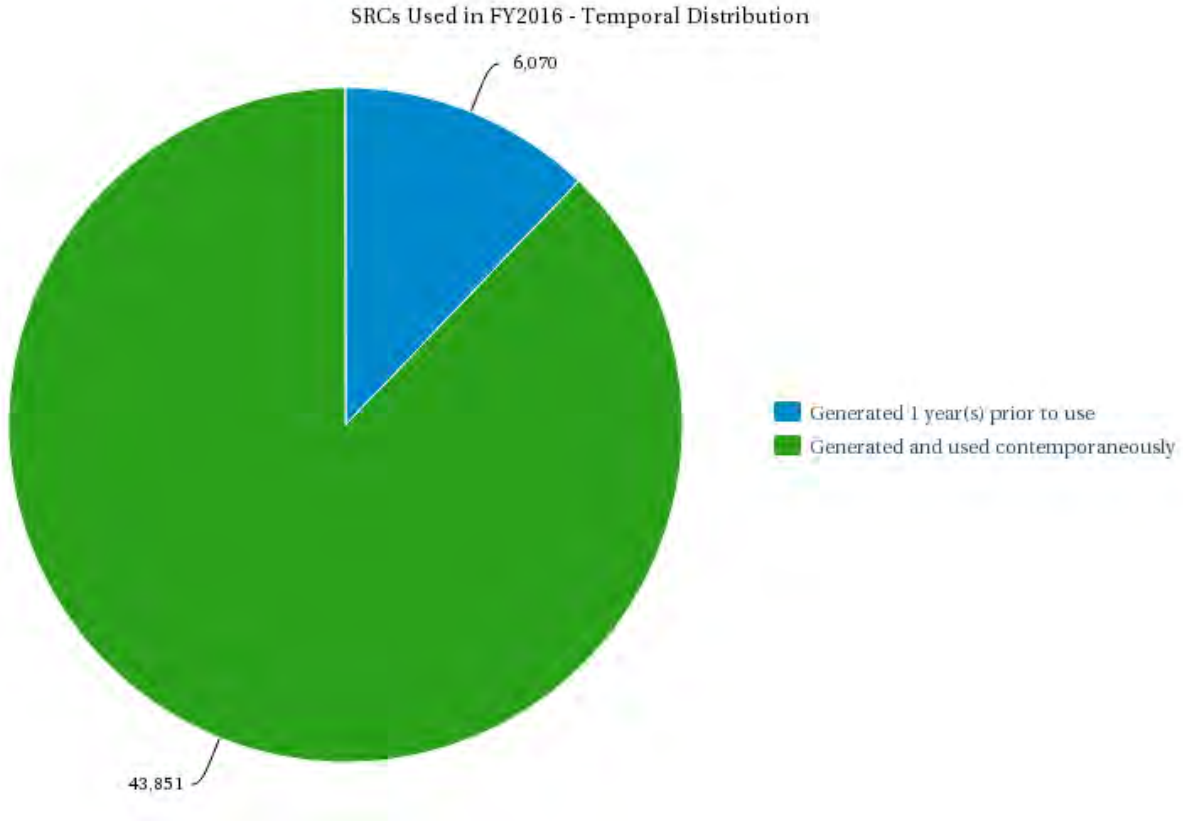


Figure 8 Temporal Distribution of SRCs Used in FY 2016



**Figure 9 Summary of Temporal Distribution of SRCs Used in FY 2016**

**Table 9 SRCs Used in FY 2016**

Number of SRCs	Certification Date	Certification Watershed	Certification Sewershed	Use Date	Use Watershed	Use Sewershed
38,324	9/24/2015	Potomac	MS4	10/8/2015	Anacostia	CSS
6,070	3/7/2014	Potomac	MS4	10/31/2015	Anacostia	CSS
4,943	3/7/2015	Potomac	MS4	10/31/2015	Anacostia	CSS
584	1/29/2017	Rock Creek	CSS	8/24/2016	Rock Creek	CSS

**FY 2017 Goals:** DOEE expects SRC trades to increase throughout FY2017, as regulated demand increases, both from regulated sites with an approved Offv that reach the end of construction and from new regulated sites going through the permitting process. In addition, as SRC purchase agreements become available to SRC generators, DOEE expects a significant increase in the generation of SRCs in the MS4. DOEE also plans to continue providing trainings and undertaking other efforts to assist program participants.